

Minnesota Ag Through the Ages: 1850-1900



Did You Know?

Pioneer settlers came to Minnesota hoping to succeed as farmers. The soils, climate and terrain were new to them, though. Many failed when they tried to raise crops that weren't suited for their part of the state. They needed help!

In 1885, the State Legislature did something about it. They created the Agricultural Experiment Station as part of the University of Minnesota. The Station's job was to research ways to improve agriculture. Plant breeders at the Station developed dozens of varieties of grains, flowers, fruits, vegetables, trees and shrubs that grow well in Minnesota. They helped farmers find better ways to raise animals and foresters better ways to grow trees. Today the U of M has research centers in Rosemount, Crookston, Grand Rapids, Lamberton, Morris and Waseca; special forestry centers at Itasca and Cloquet; and a horticultural research center at the Minnesota Landscape Arboretum in Chanhassen.

In every AgMag this year, you'll see how these centers help us live better and healthier lives!

Agriculture has been changing since the first seeds were sown and the first animals tamed. Minnesota's first farmers lived here long before white settlers arrived and long before statehood. They were Native Americans of two main tribes, Dakota and Ojibwe. They hunted, gathered and grew food to meet their own needs. When Fort Snelling was built in the 1820s, soldiers tilled many acres for crops. Soon immigrants from Europe came, in hopes of growing all the food they needed. Eventually, farmers were

able to produce enough crops and livestock to meet their own needs with some extra to sell to others. Farming was now a business! Maybe your ancestors were among Minnesota's early farmers.

Around 1860, big changes happened. Expanding railroads opened the west and carried farmers' grain to new markets. Abraham Lincoln was President. Farms got bigger. The Civil War meant fewer people to help with farm work as men and boys became soldiers. Here's a glimpse from history's scrapbook.

Steel Plows the Way.

Prairie soil stuck to the early iron and wood plows. Plowing was slow and difficult. In 1837 John Deere invented a smooth, polished steel plow to solve the problem. By the 1860s, Deere was making enough plows to supply the farmers moving west. The prairie sod became large flourishing fields.

The Land-Grant Act of 1862.

This new law gave every state 30,000 acres of federal land for each senator and representative it had. The land was to be sold to farmers and settlers. The money was to be used to set up a college in agriculture and mechanical arts for people who might not otherwise be able to go to college. The University of Minnesota is our state's land-grant college.

The Homestead Act of 1862.

Many farmers got their start with 160 acres from the government under this act of Congress. The land came from the Louisiana Purchase. The rules were simple: pay a small fee, stay on the land for five straight years and improve the land (generally by growing crops and building a house). Then the land was yours.

Machine Power: Full Steam Ahead.

After the Civil War (1861-1865), machine power for farming kept growing. Horses had powered early reapers and threshing machines; now steam powered those engines. A fire and a big tank of water were needed to make steam, though. Inventors kept looking for something better.

Make Way for Tractors! In 1892, inventor Rudolph Diesel showed the world his internal combustion engine. The power came from heat (fuel burning) inside the engine itself. Machinery with these lighter engines could be moved quickly and driven more easily — a great help to the giant, specialized wheat farms ("Bonanza" farms) now in western Minnesota. By 1904, Benjamin Holt had invented a tractor using the new Diesel engine. This invention changed farming forever.



1850

1885

1900

Think & Discuss

1. How might each invention encourage bigger farms?
2. How did each event affect agriculture?
3. How did it encourage people to move westward?
4. Put a dot on the timeline for each event. What do you notice about how inventions developed?

Minnesota Ag Through the Ages: 1900-1950



Did You Know?

Minnesota scientists have helped feed the world. They've made huge contributions to better crops. Agricultural research at the University of Minnesota has led to improved crops of many kinds.

- Rust-resistant wheats greatly increased wheat yields.
- Hybrid corns, developed in the late 1800s, were gradually accepted. By 1950, 97% of the corn planted was hybrid.
- The Minnesota #1 hog was developed—a standard breed with much less lard than produced by earlier hogs.
- The Wealthy apple was created, designed to grow well in northern climates.

Scientists from the University have helped make better equipment to process and preserve the products coming from the land. Economists from the U have helped lead the way in marketing and distributing food worldwide. The University of Minnesota has been an agriculture leader for 150 years—and it's still going strong!

You were here at the turn of the new century, but what were things like a century ago when the 1900s began? People drove horses instead of cars. Planes had not yet flown. Lanterns and candles lit homes and businesses. There were no televisions, few telephones and NO computers! A hundred years ago in Minnesota:

- Men outnumbered women. Today they are even.
- The few women in the paid work force were usually servants. Today 68 percent of Minnesota women work—in all kinds of jobs.
- A child was 15 times more likely than today to die before the age of five.
- Nearly half (40 percent) of Minnesotans worked in production agriculture (farming). Today it's less than two percent.

Back to Diversified Farming

Before the turn of the century, wheat was king of crops in the Red River Valley and western Minnesota. Minneapolis and St. Paul were world flour milling centers. Machine power helped huge farms called bonanza farms grow millions of bushels of wheat. But the boom didn't last. Soon the supply of wheat was greater than demand, so prices for wheat went down. Many bonanza farms were divided and sold, creating many smaller farms. Farmers turned to corn, oats and a new hay crop called alfalfa. Some grew fruit trees. Others chose dairy farming. By the 1900s, like in the earliest days of agriculture, farms were back to raising a variety of crops and livestock instead of one main crop.

The Great Depression of the 1930s

Not knowing there would be problems, farmers had spent many years grazing large herds of cattle and plowing the plains for croplands. The grasses holding soil in place were slowly destroyed. When drought and winds came, disaster followed. The soil eroded and the great Plains became the Dust Bowl. The dust killed the crops, forced people to flee their homes, choked thousands of farm animals and piled inside homes and schools.

After the Great Depression, President Roosevelt's New Deal helped farmers who couldn't make enough money on crop sales to stay in business. Farmers joined together to take actions that helped them all. Conservation became important, and the Soil Conservation Service helped farmers learn to protect their soils.

Electricity Turns On!

During the 1920s to the 1940s, electricity slowly became available across rural America. Electric milking machines meant more cows could be milked in less time. More land could be irrigated with electric pumps. More grain could be moved with electric elevators. Farm homes had bright lights and electric appliances.

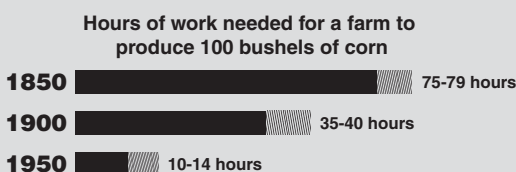


Photo Courtesy U of M Agricultural Experiment Station

This pig, called Minnesota #1, was the beginning of the trend to leaner and healthier pork products that we now take for granted.

Advances in Technology

New and better equipment and new plant and animal developments helped farmers. Hybrid seeds produced stronger, healthier plants with greater yields per acre. Vaccines protected animals against disease. Crop protection chemicals helped produce more and healthier plants. By 1950, use of commercial fertilizer brought yields way up.



1900

1950



Put a mark on the timeline to show each event. Some take place over several years. Why did the hours of work needed to produce corn drop so much in 100 years?

Minnesota Ag Through the Ages: 1950-2002

Only about 30 years ago, Minnesota cropland stretched as far as the eye could see. But things are changing. Growing towns and cities have spread out into the countryside. Stores and homes appear next to cornfields and barns. When farmland is changed to urban uses, it no longer produces things that give people food, clothing and shelter. Still, more food and fiber are needed for the world's growing population. **Biotechnology** and information technology have meant great changes to agriculture. These are just a few of those changes.

Crop Protection

Farmers have always lost a part of their crops to pests and plant diseases. From 1950 to about 1980, new crop protection chemicals were developed. They control weeds, pests, insects and diseases and greatly boost growth and yields. At the same time, there were concerns for safe use. Farmers are trained to use these chemicals with care and caution to protect groundwater, air, soil and themselves.

Today crop protection includes many more choices. It's called integrated pest management (IPM). Some IPM farmers change the kind of crops that are grown on fields from year to year. Then pests that are attracted to certain crops don't get a steady food supply. They keep pests from growing areas with barriers like huge plastic screens. They may steam pasteurize soil to eliminate diseases and insects. They use helpful insects to control harmful ones. The latest development is crops that provide their own pest resistance, nitrogen and fertilizer.

Food Safety Technology

The American food supply is the safest in the world. Science and technology keep looking for ways to make it even safer. Food irradiation is just one of these ways.

Irradiation means to pass food through a high energy source such as electron beams to kill harmful bacteria like E. coli and Salmonella. The process can also control insects and parasites. It can reduce spoilage and slow down ripening. Meat and poultry, fresh fruits, vegetables, grains and spices are some of the foods that are commonly irradiated.

Irradiation has been studied for over 40 years. It has not been found to have any effects on human health. Irradiation is not a substitute for proper food manufacturing and handling, but it helps keep harmful bacteria out of the food we buy. Foods that have been irradiated are labeled. They carry the international symbol for irradiation, the radura.



Plant Breeding

What if we could grow enough nutritious food to feed millions more people around the world? What if we could get vaccine in fruits instead of shots? What if we could grow food that stays fresh longer in stores, resists pests and survives droughts? All these things can be done through changing the genes in crops. By cutting, joining and trading genes between species, scientists create plants with unique new qualities. These plants are sometimes called **GMOs** (genetically modified organisms).

Working with plant genes is part of the science of biotechnology. GMOs are not new. Scientists have been improving plants and animals through careful breeding for many years. That's how we are getting lean meat animals, fast-growing trees, hybrid crops, drought-resistant wheat and more.



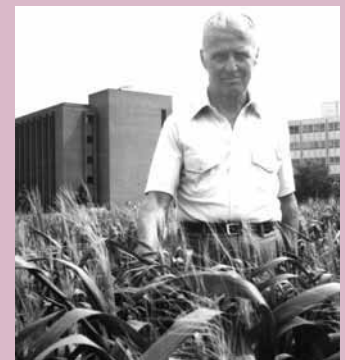
What are some things you'd like science and technology to improve about your food and fiber by the time you are an adult?



Did You Know?

The Green Revolution was a special time in agriculture between 1960 and 1970. Scientists at the University of Minnesota were among many working hard to help people in developing countries eat better and grow more of their own food. We are still building on things that were started during that time.

University of Minnesota graduate Norman E. Borlaug was a leader in the Green Revolution. He developed a dwarf variety of wheat that could grow in the dry soil and climate of Mexico, Pakistan and India. Within four years, Mexico was growing three times more wheat on each acre than it had before. In 1970, Dr. Borlaug received the Nobel Peace Prize for his "Miracle Wheat."



Dr. Norman Borlaug examining wheat plants. Photo Courtesy U of M Agricultural Experiment Station

University of Minnesota people have developed 35 new wheat varieties and hundreds of other crop varieties (corn, oats, etc.) that help feed the world.

1950

2002